

WHAT IS CLAIMED IS

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1. A biaxially oriented multi-layer film which comprises:
    - (a) a core layer comprising at least about 90% of a syndiotactic polypropylene polymer;
    - (b) at least one additional layer adjacent to the core layer comprising a material selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof; and
    - (c) wherein the shrinkage of the biaxially oriented multi-layer film at 135° C is less than 25% in the machine and transverse directions.
  2. The biaxially oriented multi-layer film of claim 1 wherein the shrinkage at 135° C is less than 16% in the machine and transverse directions.
  3. The biaxially oriented multi-layer film of claim 1 wherein the shrinkage at 135° C is less than 8% in the machine and transverse directions.
  4. The biaxially oriented multi-layer film of claim 2 further comprising a skin layer adjacent to at least one additional layer wherein the skin layer comprises a polyolefin.

5. The biaxially oriented multi-layer film of claim 4 wherein the skin layer is a polyolefin selected from the group consisting of isotactic polypropylene, ethylene-propylene random copolymer, ethylene-propylene block copolymer, ethylene-propylene-butene-1 terpolymer, and blends thereof.

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10 6. The biaxially oriented multi-layer film of claim 5 comprising a second layer adjacent to the core layer comprising a material selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof.

7. The biaxially oriented multi-layer film of claim 2 having a coating comprising a material selected from the group consisting of polyvinylidene chloride, a polyvinyl alcohol, an acrylic polymer, and blends thereof.

8. The biaxially oriented multi-layer film of claim 2 wherein the at least one additional layer comprises silica particles.

9. The biaxially oriented multi-layer film of claim 2 comprising an alicyclic hydrocarbon.

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30 10. A biaxially oriented multi-layer film which comprises:

- (a) a core layer comprising a syndiotactic propylene polymer;
- (b) a first outer layer adjacent to a first side of the core layer wherein the first outer layer comprises a material selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-

vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof;

(c) a second outer layer applied to an outer surface of the first outer layer, wherein the second outer layer comprises a material selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof;

(d) a third outer layer adjacent to a second side of the core layer, wherein the third outer layer comprises a material selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof;

(e) a fourth outer layer applied to an outer surface of the third outer layer, wherein the fourth outer layer comprises a material selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random

terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof; and

- 5 (f) wherein the shrinkage of the biaxially oriented multi-layer film at 135° C is less than 25% in the machine and transverse directions.

10 11. The biaxially oriented multi-layer film of claim 10 wherein the shrinkage at 135° C is less than 16% in the machine and transverse directions.

15 12. The biaxially oriented multi-layer film of claim 11 wherein the shrinkage at 135° C is less than 8% in the machine and transverse directions.

13. A process for preparing a biaxially oriented multi-layer film having a shrinkage at 135° C of less than 25% in the machine and transverse directions which comprises the steps of:

- 20 (a) melt coextruding a film comprising: (i) a core layer comprising at least about 90% of a syndiotactic polypropylene, (ii) a first additional layer adjacent to a first side of the core layer comprising materials selected from the group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof, and (iii) a second additional layer adjacent to a second side of the core layer comprising materials selected from the
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group consisting of butene-1-propylene random copolymer, ethylene-propylene block copolymer, nylon, polyester, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, ethylene-propylene-butene-1 random terpolymer containing 1 to 5 wt.% random ethylene and 10 to 25 wt.% random butene-1, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, and blends thereof, and

(b) biaxially orienting the coextruded combination in a machine and a transverse direction.

14. The process of claim 13 wherein the biaxially oriented multi-layer film have a shrinkage at 135° C of less than 16% in the machine and transverse directions.

15. The process according to claim 13 wherein the biaxially oriented multi-layer film has a shrinkage at 135° C of less than 8% in the machine and transverse directions.

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